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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,672	10/23/2003	Gregory A. James	130109.507	9651
500 7590 03/28/2008 SEED INTELLECTUAL PROPERTY LAW GROUP PLLC 701 FIFTH AVE SUITE 5400 SEATTLE, WA 98104				
EXAMINER				
ECHELMEYER, ALIX ELIZABETH				
ART UNIT		PAPER NUMBER		
1795				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/693,672

**Applicant(s)**

JAMES ET AL.

**Examiner**

Alix Elizabeth Echelmeyer

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 10, 2008 has been entered.
2. Claim 1 has been amended. Claims 2 and 3 were previously withdrawn. Claims 1 and 4-14 are rejected for the reasons given below.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4-6, 8 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonk et al. (US 2001/0001052) in view of Chisawa et al. (JP 11-204122).

Bonk et al. teach a sealed fuel cell stack (abstract). The sealing is directed to the polymer electrolyte membrane assembly, consisting of a membrane having an anode catalyst on one side and a cathode catalyst on the other ([0019]). There are also anode

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and cathode substrates and water transport plates corresponding to the fluid diffusion layers of the instant invention ([0041]-[0043]). On the outer periphery of the fluid diffusion layers are impregnated seals ([0042], [0043]).

As seen in Figure 2, a barrier film (46, 42) is placed between the membrane (48) and the impregnated seals (52, 36) ([0041]-[0045]).

The seals of Bonk et al. are leak-proof ([0053]).

Regarding claim 4, the PEM assembly, including the barrier film, of Bonk et al. is heated to bond the components together ([0052]). In order for bonding between the seals to occur, diffusion or impregnation between the various seals would occur during the heating and pressing steps.

Regarding claim 5, the seals of Bonk et al. may be made of silicone rubber or foam ([0045], [0058])

As for claims 6 and 8, Bonk et al. teach that the barrier films are made of a thermoplastic material ([0045]).

Regarding claims 10 and 11, Bonk et al. teach anode and cathode fluid diffusion layers (Figure 2 Ref. Num. 32, 34).

Concerning claims 12 and 13, the seals, including the barrier layers, of Bonk et al. encompass the periphery the substrates (Figure 3, [0037], [0046]).

With regard to claim 14, it can be seen in Figure 2 that the seals (62, 53, 46, 42, 36, 60) extend beyond the membrane (48) and fluid diffusion layers (32, 34).

Bonk et al. fail to teach the barrier film extending beyond the sealing region towards the reactive area of the ion-exchange membrane.

Chisawa et al. teach a solid polyelectrolyte fuel cell (abstract). Chisawa et al. teach a sheet between the membrane and the catalyst layers (Drawing 4, [0037]).

Chisawa et al. teach that the sheet (9) helps to prevent shearing stress on the membrane by the sealant ([0012]). In this case, the sealant is considered to be analogous to the fluid impermeable integral seals, and the sheet is analogous to the barrier film.

It would be desirable to provide the barrier film of Bonk et al. extending into the membrane reactive area such as taught by Chisawa et al. in order to protect the membrane from shearing stress caused by the sealant.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the barrier film of Bonk et al. extending into the membrane reactive area such as taught by Chisawa et al. in order to protect the membrane from shearing stress caused by the sealant.

5. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonk et al. in view of Chisawa et al. as applied to claims 1 and 5 above, and in further view of Kaye (US Pre-Grant Publication 2005/0014059).

The teachings of Bonk et al. and Chisawa et al. as discussed above are incorporated herein.

Bonk et al. in view of Chisawa et al. teach a thermoplastic barrier layer but fail to teach that it is a polyimide material.

Kaye teaches a fuel cell having a membrane electrode assembly disposed between two bipolar plates, the plates having a gasket around their perimeter (abstract; [0026]).

Kaye further teaches that polyimide may be used for the gasket material since it has high temperature and chemical resistance ([0166]).

It would have been desirable to use the polyimide gasket of Kaye to seal the membrane electrode assembly of Bonk et al. in view of Chisawa et al. since polyimide has high temperature and chemical resistance.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the polyimide gasket of Kaye to seal the membrane electrode assembly of Bonk et al. in view of Chisawa et al. since polyimide has high temperature and chemical resistance.

### ***Response to Arguments***

6. Applicant's arguments concerning the newly added limitations have been considered but are moot in view of the new ground of rejection, see above.
7. Applicant's arguments concerning the previously examined limitations have been fully considered but they are not persuasive.

On page 6 of the Remarks, Applicant states that "no single element in Bonk inherently anticipates both the seal and a barrier film." The examiner agrees. There are two separate sealing elements in Bonk et al.: a barrier film (46 or 42, disclosed as a material that bonds and seals the components of the cell [0045]) and an impregnated seal (52 or 36, disclosed as impregnated in the cathode gas diffusion layer [0042]). The arguments in the Final Rejection, which Applicant has references on pages 6-7 of the Remarks, were clarifying that, even though the sealing layers 46 and 42 of Bonk et al. are not explicitly called "barrier films" but are instead called seals, they still serve the function of a barrier film since they are providing a seal. The examiner holds that there are two separate elements in Bonk et al. and the elements correlate to the impregnated seal and barrier film of the instant invention.

On page 8 of the Remarks, Applicant argues that Bonk et al. does not disclose the recited location of the barrier film. This is a newly added limitation, and has been addressed above in the rejection over Bonk et al. in view of Chisawa et al.

Claims 2 and 3 will not be rejoined at this time since claim 1, the generic claim, has not been found to be allowable.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer  
Examiner  
Art Unit 1795

aee

/Susy N Tsang-Foster/

Supervisory Patent Examiner, Art Unit 1795